

NTIA's Role in Root Zone Management

Note: This slide deck is intended to describe NTIA's role in Root Zone management and does not represent the entirety of the Root Zone management process. Specifically, it does not detail the activities of ICANN or Verisign.

What is Root Zone Management?

- “Root Zone Management” involves the processes by which changes are made to the:
 - Root zone file –generally speaking, this is a listing of authoritative name server information and Delegation Signer (DS) resource records associated with each top level domain (TLD).
 - Root WHOIS database - this is a separate database that includes contact information associated with each TLD and other registry information.
- Changes to the root zone file and root WHOIS database are typically related to routine TLD maintenance (e.g., changes to name servers), but periodically are the result of TLD delegations and redelegations.

Root Zone Management Partners

- Root Zone Management currently involves three roles with the following responsibilities:

ICANN

IANA Functions Operator

Receives, reviews, and processes Root Zone file change requests, performs technical checks, notifies operators of completion of request; implements changes to Root WHOIS Database

NTIA

Administrator

Verifies ICANN followed process, procedures and policies; authorizes Verisign to implement Root Zone file changes; authorizes ICANN to implement WHOIS Database changes

Verisign

Root Zone Maintainer

Implements changes to the Root Zone File

NTIA's Role in Root Zone Management

- NTIA role in root zone management is clerical and administrative.
- NTIA involvement is limited to verifying that processes, procedures, and policies are followed; and providing authorization to implement or proceed with requests based on that verification.
- NTIA involvement is judgment free with regards to content.

NTIA's Role in a Root Zone File Change

Step #1: Receive Change Notification

- **NTIA Receives Change Notification:** Once ICANN receives, reviews, performs technical checks, and processes a root zone file change request from TLD administrators (registry operators), it sends NTIA an automated email notification requesting authorization for VeriSign to implement the change in the root zone file.
- Main attributes of that notification:
 - Indication of secure transmission (i.e., PGP signed)
 - Standard set of information, including summary of requested changes
 - Certification that processes followed
 - Request for authorization

What information is included in a Root Zone File change request to NTIA?

Hypothetical example for a name server change to “.ntia” TLD (which does not exist)

Change request ID #:	650427:0
Request Priority:	Normal
Top-level domain:	NTIA
Purpose/Description:	Name Server Change to NTIA

Domain Update

Name:	NTIA
Current:	NS1.NTIA NS2.NTIA NS3.NTIA
Remove:	NS2.NTIA
Add:	NS4.NTIA

What information is included in a Root Zone File change request to NTIA?

Hypothetical example for a delegation signer (DS) record change to “.ntia” TLD (which does not exist)

Change request ID #: 653714:0
Request Priority: Normal
Top-level domain: NTIA
Purpose/Description: DS record change to NTIA

Domain Update

Name: NTIA

Current: NS1.NTIA
NS3.NTIA
NS4.NTIA

Current DS Data: KEYTAG[#####]

Chg DS DATA: KEYTAG[#####]

ALG[#]

DIGESTTYPE[#]

DIGEST[#####]

Step 2: Verify

- **Verification:** NTIA verifies that ICANN followed established process and procedures.
- **NTIA Considers:**
 - Did ICANN follow the change notification process correctly?
 - Transmitted securely?
 - Includes the standard set of information (i.e., summary of requested changes)?
 - Self-certification from ICANN that processes followed?
 - Request for authorization?

Step 3: Authorize

- **Authorization:** After verification, NTIA authorizes Verisign to implement the change in the root zone file. This is done one of two ways:
 - Securely transmitted email
 - Web-based user interface system developed by ICANN and Verisign and implemented in 2010 to more fully automate the root zone management process
- Following authorization, Verisign performs technical checks, implements the change, and sends a secure email notification to NTIA and ICANN indicating the change request was successfully implemented.
 - The notification includes a serial number associated with the root zone file where the change will first be visible.

NTIA's Role in a Root Zone File Change: Summary

Step 1: Receive Change Notification	Step 2: Verify	Step 3 : Authorize
<p>Receive Email Notification - Once ICANN receives, reviews, performs technical checks, and processes a root zone change request, it sends NTIA an automated email notification requesting authorization for VeriSign to implement the change in the root zone file. Notification includes:</p> <ul style="list-style-type: none">• Indication of secure transmission (ex: PGP signed)• Standardized set of information, including summary of requested changes• Certification that processes followed• Request for authorization	<p>Verification: NTIA verifies that ICANN (as the IANA function operator) followed established process and procedures.</p> <p>NTIA Considers:</p> <ul style="list-style-type: none">▪ Did ICANN follow the notification process correctly?<ul style="list-style-type: none">▪ Transmitted securely?▪ Includes the standard set of information (ex: summary of requested changes)?▪ Certification that processes followed?▪ Request for authorization?	<p>Authorization: NTIA authorizes Verisign to implement the change in the root zone file.</p> <p>After performing technical checks, Verisign sends an email notification to NTIA and ICANN indicating the change request was successfully implemented, which includes a serial number associated with the root zone file where the change will first be visible. ICANN notifies the requester after receiving confirmation of implementation by Verisign.</p>

NTIA's Role in a Root WHOIS Database Change

- The root WHOIS database is not the root zone file. These are two separate registries.
- NTIA's role and the process by which changes are made to the root WHOIS database are essentially the same as those for root zone file changes.
- The difference is that the root WHOIS database change process does not involve Verisign.
- At the end of the root WHOIS database change process, NTIA authorizes ICANN to implement the change.

What information is included in a Root WHOIS Database change request to NTIA?

Hypothetical example for “.ntia” TLD (which doesn’t exist)

Database change to .NTIA

Technical Contact

Name: [old value] Janemadeup Smith

[updated to] Lydiamadeup Brown

Phone number: [old value] ###-###-####

[updated to] ###-###-####

Public email: [old value] xxxx@xxxx.ntia

[updated to] xxxxx@xxxxxx.ntia

Administrative Contact

Public email : [old value] x@xx.ntia

[updated to] xx@x.ntia

WHOIS Server: [add new value] WHOIS.DOC.NTIA

NTIA's Role in a WHOIS Database Change: Summary

Step 1: Receive Change Notification	Step 2: Verify	Step 3 : Authorize
<p>Receive Email Notification - Once ICANN receives, reviews, and processes a WHOIS database change request, it sends NTIA an automated email notification requesting authorization for ICANN to implement the change in the root WHOIS database. Notification includes:</p> <ul style="list-style-type: none">• Indication of secure transmission (ex: PGP signed)• Standardized set of information, including summary of requested changes• Certification that processes followed• Request for authorization	<p>Verification: NTIA verifies that ICANN followed established policies and procedures.</p> <p>NTIA Considers:</p> <ul style="list-style-type: none">▪ Did ICANN follow the notification process correctly?<ul style="list-style-type: none">▪ Transmitted securely?▪ Includes the standard set of information (ex: summary of requested changes)?▪ Certification that processes followed?▪ Request for authorization?	<p>Authorization: NTIA authorizes ICANN to implement the change in the root WHOIS database.</p> <p>ICANN notifies the requester after receiving authorization from NTIA.</p>

NTIA's Role in Delegation and Redelegation Requests

In cases where new delegations and/or redelegations of TLDs are made, an additional pre-requisite step in root zone management is required. NTIA's role in this additional step is the following:

- First – Once ICANN completes processing of a delegation/redelegation request, it sends NTIA an email notification. Notification includes:
 - A delegation or redelegation report
 - Certification that ICANN followed established policies
 - Recommendation for authorization to proceed with delegation/redelegation
- Second - NTIA reviews information contained in the notification to ensure it is complete with no errors.
- Third - NTIA acknowledges receipt of the information contained in the notification and authorizes ICANN to proceed with processing the root zone file changes necessary for the delegation/redelegation.
- ICANN then initiates the root zone file and WHOIS database change processes as described in the previous slides.

NTIA's Role in Delegation/Redelegation Requests: Summary

Step 1: Receive Notification	Step 2: Verify	Step 3: Acknowledge / Authorize
<p>Receive Email Notification - Once ICANN completes processing of a delegation/redelegation request, it sends an email notification to NTIA. Notification includes:</p> <ul style="list-style-type: none">• A delegation or re-delegation report• Certification that ICANN followed established policies• Recommendation for authorization to proceed with delegation/redelegation	<p>Verification: NTIA reviews information contained in the notification to ensure it is complete with no errors.</p>	<p>Acknowledge/Authorize: After review and verification, NTIA acknowledges receipt of the information contained in the notification and authorizes ICANN to proceed with processing the root zone file changes necessary for the delegation/redelegation.</p> <p>After receiving authorization, ICANN initiates the root zone file and WHOIS database change processes as described in the previous slides.</p>

NTIA Root Zone Management Statistics

- The following is the number of requests received by NTIA for November 2014, broken out by type.
 - Root zone file changes: 47
 - Root WHOIS database: 30
 - Delegation/Redelegation: 22
- NTIA response time is between 1 and 24 hours for all requests.